



MFGRS. PLASTIC FILMS

## MONO-SOL CORPORATION

407 COUNTY LINE ROAD

GARY, INDIANA

November 10, 1960

PHONE YELLOWSTONE 8-1165

Mr. J. Lederberg  
Professor of Genetics  
Stanford University  
Palo Alto, California

Dear Mr. Lederberg:

Your letter of the 8th, gives me a little more information as to your objectives and I will try to be as helpful as possible.

There are certain limitations of polyvinyl alcohol (PVA) film which must be respected. To get the tackiness that you require is going to have to result in the incorporation of some type of humectant, preferably glycerine or a glycol. This will make the film tacky and relatively unstable. At high relative, the surface of the film will become extremely soft and stretchy, and at low relative the film will become less tacky or more papery because of the fact that glycerine gives up or absorbs moisture in accordance with the relative humidity. I do not think that simply wetting the material will be satisfactory, as it will dry out very rapidly, dependent upon the relative humidity conditions of the air. It will be impossible to make, mechanically, a PVA film of the tackiness that you require, as we would not be able to get it off our casting belt and it would block together in the rolls, therefore, you will have to "paint" or coat a water glycerine solution on the surface of PVA to get tackiness after the film is in place. This will undoubtedly cause the film to expand and wrinkle up, and upon drying it is very probable that it would not dry down to a smooth optical surface without wrinkles unless the film could be confined or held rigidly in position.

In regard to PVA filaments, the only filaments that we know of from PVA are made absolutely water insoluble by reacting the filaments with a chromium type of insolubilizing agent or an aldehyde of some type. This of course, defeats the purpose of your end use. It would appear to me that it would not be possible to make filaments that would be soluble, as all of the work on filaments appear to be of the insoluble type. One big advantage of PVA over alginates, gelatin, and etc., is that PVA is relatively free of quick decomposition and rot. I would suggest that you use some 71-30 Dupont PVA resin and make up varying water solutions in combination with varying quantities of glycerine. This should be done with heat and stirring, and we would suggest that you use possibly 10% of PVA to water as a starter. A minute amount of wetting agent, such as Duponal ME should be added to get rid of the poc marks and remove any breaks in surface tension. This material could then be cast on a plate glass and allowed to dry, preferably at relative humidity of 50%/70°F.

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Mr. J. Lederberg

Glass plates can be readily spun on what is known as a lithographer's coating gelatin spreader or you can spin the gelatin spreader on a phonograph turntable if the speed is high enough. This method throws out the excessive film material and gives fairly uniform coating. The glass plate used could be previously scored with a glass cutter prior to coating, and then broken up after the film is dried. The surface of the glass must be spotlessly clean in order to get good adhesion, especially free of grease and finger marks. Hoping this information is of service to you.

Very truly yours,

MONO-SOL CORPORATION

  
E. M. Kratz  
Vice President

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